

TITLE

Cross Reference to a Related Application

15 ~~OBJECT OF THE INVENTION~~

Field of the Invention

25 The present invention relates to the process of design and manufacture of an inner rolling platform and of a container with a positioning receptacle having a flat convex section. The design is based on providing a ratio of geometric parameters of both constructive formations, which must be moved together so that the inclination insertion and extraction mechanism of the container, provided for inserting and extracting the inner rolling platform into the receptacle of the mentioned container, acts correctly.

30 The inner rolling platform when using the internal mechanism of inclination of the container whose essential interest resides in that it allows him to be located and extracted in the rigid container comprising a positioning receptacle, of section plane concave, without being necessary to lift it of the floor, coarse with inclining it lightly, so that when the rigid container this vertical one, is sustained alone for their concave

~~inferior base inside the central hole of the circular crown of the inner rolling platform, allowing a firm, stable and sure combined rolling.~~

The inner inclination mechanism of the container allows the rolling platform to be positioned under and extracted from the container with a positioning receptacle without lifting the container off the platform. Instead, the container is simply tilted from its vertical position, when the inner rolling platform is supported only by the lower convex base of the container positioned inside the inclined circular area of the platform and the central hole of the inner rolling platform, allowing a joint, firm, stable and safe rolling.

~~This characteristic is fundamental, because starting from an optimized design group of the holder of location of the rigid container and of the inner rolling platform, they can be configured and manufactured in a simple way and reliable, guaranteeing the indeformabilidad of both and a sure use, allowing a reduction of producing costs and also, of use when making that the installation and extraction of the internal rolling platform, be an activity without almost effort, minimizing the bony and muscular tensions of the extremities and lumbar area of the back.~~

This is an essential feature since from an optimized joint design of the positioning receptacle of the container and of the inner rolling platform, they can be configured and manufactured in a simple and reliable manner, assuring non-deformability of both and safe use. The provided design further allows a reduction of costs of manufacture and also of use by making the installation and extraction of the inner rolling platform a virtually effortless activity, minimizing bone and muscle strain of user's limbs and lumbar region of the user's back.

~~PRIOR ART OF THE INVENTION~~

Background of the Invention

~~The main characteristic of inner rolling platform is that one can to install and to extract with a slight basculación, of the whole rigid, leaning container in the floor and without having to lift it.~~

The main feature of the inner rolling platform is that it can be installed and extracted by tilting the container, while the container is supported on the ground, and without having to lift it.

~~Numerable types of conventional rolling platforms are known for the transfer of rigid containers, but all they present a great one use of difficulty, increased by the high weight of the containers when they are loaded, causing an intense effort in the moment~~

of their location and external retreat in the rigid container, either of the type of recipients to metallic pressure and also, in those that are not pressurized neither metallic, having them to get up and to specify the correct situation of the outlying hoop to circulate of the base of the container, until being able to be deposited on a narrow fringe of it crowns to circulate, above the rolling platforms or in the case of their extraction, to put the contendor in the floor, by means of their rising you it removes of above the conventional rolling platform and separating it, he/she puts on in floor.

Numerous types of conventional rolling platforms are known for moving rigid containers. However, they all have a tremendous use difficulty, accentuated by the high weight of containers when they are loaded, thus causing intense strain in the moment of their outer withdrawal and positioning. Both pressurized metal containers and containers that are neither pressurized nor metal, require to be lifted, placed onto a conventional platform and positioned such that the peripheral ring of the base of the container is in a correct location, i.e., until it is deposited on a narrow circular strip of the rolling platform. Further, in case of its extraction, the container has to be placed on the ground by first lifting it off the platform, taking it off the conventional rolling platform and, by separating it, placing it on the ground.

Conventional rolling platforms can be seen, for example, in the descriptions contained in utility models ES 0160222 U, ES 0163942 U, ES 0169949 U and in patents DE 518919, US 1,328,458, US 2,808,220, US 2,917,769 US Des. 269,216, US Des. 276,948, US 4,544,173, US Des. 309,811, US 5,110,147, US As he can turn it, for example, in the descriptions contained in these Models of Utility are ES 0160222 U, it is ES 0163942 U, it is ES 0169949 U and in those Patent DE 518919, US 2,917,769, US 4544173 and US 5145311, US 5931149, 145,311, US Des. 340,563, US 5,931,149 and US 6293273.

The solicitor doesn't know the Applicant is aware of the documents confirming that the known rolling platforms support the containers, with or without a positioning receptacle with a flat convex section, only by means of the contour of the peripheral ring or together with its lower convex or flat base. However, Applicant is not aware of a documented existence of any invention of rolling platform that acts supporting the rigid container, only, supported by their concave inferior base and that, also, use the mechanism intern for inclination of the insert container and extraction of the inner rolling platform, as characteristic and rolling platform invention which only acts by supporting the container with a positioning receptacle with a flat convex section, supported at its lower convex base, and which further uses the inclination insertion and

extraction mechanism of the container for inserting and extracting the inner rolling platform, as improvements that it prepares provided by the object of the present invention.

5 A configuration of support group is known in a platform type rolling, in which is sustained the concave base of the container so much, supported for a tiny surface, as the periphery of the plane border of the circular hoop of support in the floor of the rigid container, and that to install it and to extract you he has to lift the A joint support configuration in a type of rolling platform is known where the support configuration includes both the concave base of the container, supported by a small surface, and the

10 base of the supporting peripheral ring to support the container on the ground. Further, for installing and dismantling it, the container container and to specify the adjustment of their outlying hoop, until to make it coincide with a narrow and narrow fringe that also, this located in a reduced area, where one has to deposit with maximhas to be lifted and the peripheral adjusted until it coincides with a narrow and thin strip, which is further

15 located in a recessed area in which it must be deposited with great difficulty and effort, just as, it is as described in the Models of Utility it is utility models ES 0155259 U, It is ES 0160222 U and it is ES 0169949 U.

Or, the rigid container being, only, sustained in the rolling platform on the outlying plane border of the circular hoop of support in the floor of the one container,

20 just as it is described in the Model of Utility it is ES 0163492 U, 5 it is ES 0169803 U and it is ES 0275089 U and in the Patents DE 518919, US 266655, US 2917769, US 4544173, US 5931149 and US 6293273. Inventions are also known in which the container is only supported on the rolling platform on the edge of the supporting peripheral ring to support the container on the ground, as described in utility model ES

25 0163492 U, ES 0169803 U and ES 0275089 U and in patents DE 518919, US 266,655, US 2,917,769, US 4,544,173, US 5,931,149 and US 6,293,273.

The prior art of different rolling platforms that in these documents they are described, they remain immobile during their different anchorage processes in their respective containers, except in the one referred in the Patent US 5931149, where

30 rolling platform and container tilt outwardly in the moment of its joining, just as US1706253 happens in the Patents, US 1706267, US 1719763, US 2215529, US 2723864, US 3826512, US 4318655 and US 6742790.

The background of different rolling platforms described in these documents remain immobile during the processes of anchoring them to their respective containers,

35 except in mentioned patent US 5931149, in which the rolling platform and container tilt

outwardly at the moment of their coupling, as occurs in U.S. Patents Nos. US 1,706,253, US 1,706,267, US 1,719,763, US 2,215,529, US 2,723,864, US 3,826,512, US 4,318,655 and US 6,742,790.

On the other hand, ~~the invention that here is described of the rolling platform it~~
 5 ~~interns, their basculación takes place inwardly inside the holder of location, without any~~
~~external participation, because automatically she gets up and she goes down from the~~
~~floor to the concave inferior base and vice versa, during the trial of the one internal~~
~~mechanism of anchorage and separation in the positioning receptacle of the one rigid~~
~~container that is carried out supporting, only and gradually, their base inferior concave~~
 10 ~~in the central hole of the circular crown of the inner rolling platform.~~

In contrast, in the invention of the inner rolling platform herein described, it tilts
inwardly of the positioning receptacle without any external participation, as it is
automatically lifted and lowered from the ground at the lower concave base and vice
versa during the process of the mechanism for anchoring and removing the container
 15 in the positioning receptacle, which is carried out only gradually by supporting its lower
convex base in the inclined circular area and the central hole of the inner rolling
platform.

~~The use of the inner rolling platform is applicable to the recipients to metallic~~
~~pressure or rigid containers with positioning receptacle existent in the market that~~
 20 ~~usually, they are utilized containers for the one storage and transport of pressurized~~
~~liquids or of liquefied gases, although the existence of what is denominated location~~
~~holder in this invention and to the one that he is given a new utility, in alone origin it is~~
~~consequence of a function of protection of their concave inferior base and of~~
~~stabilization of the support in the floor, as she can US it turns in the Patents 3348721,~~
 25 ~~US 3505536, US 3747799, US 3840141 and US 6293273.~~

The use of the inner rolling platform can be applied to some pressurized metal
recipients existing on the market. For example, it can be applied to are containers used
for storage and transport of pressurized liquids or liquefied gases, such as that
explained in the preferred embodiment of the invention. This application originally
 30 referred to such use as the positioning receptacle with the proper geometric features.

Therefore, this invention provides a new use to the bottom of the lower base of
the container or positioning receptacle which originally only has the functions of
protecting the base of the container and stabilizing its support on the ground, as can be
seen in patents US 1,909,028, US 2,988,258, US 3,348,721, US 3,505,536, US
 35 3,747,799, US 3,840,141, US 3,854,582, US 4,151,927, US 4,294,373, US 4,381,061,

US 4,577,775 and US 6,293,273.

There are documents showing a use of the bottom of the lower base of the container for safely coupling a rolling platform. They do so by means of complex insertion and extraction mechanisms, requiring a burdensome handling of the container
 5 for placing the rolling platform, as can be seen in patents US 5,074,572, US 5,184,836 and US 5,758,888.

~~The invention that here is described, wide the possibility to use the internal rolling platform to other types of rigid containers, besides those pressurized, transforming their conventional support bases in the floor in positioning receptacles, maintaining their capacity support in the floor and of piling up that they can be seen in~~
 10 ~~certain Patents, such as; US 2272447, US 2447300, US 2635775, US 3235094, US 3854582 and US 4981412.~~

The invention herein described extends the possibility of using the inner rolling platform to other types of containers, besides pressurized containers, by modifying the
 15 geometric structure of their conventional bases in suitable positioning receptacles, and maintaining their utility of being supported on the ground and stacked, as can be seen in some patents such as US 2,272,447, US 2,447,300, US 2,635,775, US 3,235,094, US 3,854,582 and US 4981412.

~~The simplicity of the design and of the productive process, use easiness with~~
 20 ~~minimum effort of the inner rolling platform, contrasts with the difficulties of use and great required effort, of the rolling platforms conventional for the different types of conventional rigid containers, as the conventional cars with four or three wheels that use complex mechanisms to run off with from the floor to the heavy containers to be able to them then to displace, like it is described in the Model of Utility ES1045813 U~~
 25 ~~and the following Patent US 2360858, US 2635775, US 3587892 and US 5122027 or well, in other cases they must turn you jointly, the car transporter and the one container until the wheels contact with the floor like it is described in the Patents, such as; US 460250, US 1738096, US 1866887 and US 2160041.~~

The simplicity of the design and of the production process and ease of use with
 30 minimum effort of the inner rolling platform contrasts with the difficulties of use and tremendous effort required with conventional rolling platforms for the different types of known containers, such as conventional three or four wheeled carriages using complex mechanisms for lifting heavy containers off the ground to then be able to move them, as described in utility model ES 1045813 U and the following patents: US 2360858, US
 35 2635775, US 3587892 and US 5122027. Or in other cases the transporting carriage

and container must be tipped over together until the wheels make contact with the ground, as described in patents such as US 460250, US 1738096, US 1866887 and US 2160041.

~~In the case with two wheels must lift the heavy container for to place it in the base of the car and later on, to turn car jointly and container for their transfer, supporting the effort of sustaining the container inclined on the car and of their displacement, examples of both stocks you they describe in the Model of Utility it is ES 0292289 U and the Patents GB 1025705, GB 2069454, US 879914, US 957840, US 1300567, US 1517901, US 1704769, US 1719763, US 1820728, US 2447300, US 2272447, US 2650834, US 2723864, US 3075662, US 3503623, US 3845968, US 3376986, US 4802681 and US 4981421.~~

In the case of two wheels, the heavy container must be lifted in order to place it at the base of the carriage and then tip over the carriage and container together to move them, supporting the effort of holding the container inclined on the carriage and their movement. Examples of both actions are described in utility models ES 0292289 U and patents GB 1025705, GB 2069454, US 879914, US 957840, US 1300567, US 1517901, US 1704769, US 1719763, US 1820728, US 2447300, US 2272447, US 2650834, US 2723864, US 3075662, US 3503623, US 3845968, US 3376986, US 4802681 and US 4981421.

20

DESCRIPTION OF THE INVENTION

Description of the Invention

~~The present invention is a system whose fundamental internal mechanism for inclination of the container, it allows the placement and extraction of an inner rolling platform in a rigid container, with an appropriate one positioning receptacle, to be able to transfer it without having to lift it of the one floor.~~

The present invention is a system of an inner rolling platform and container with a positioning receptacle creating an inclination mechanism of the container. It allows placing and extracting an inner rolling platform to and from a container with a suitable positioning receptacle having a flat convex section so as to be able to move it without having to lift it off the ground.

~~The inner rolling platform it composes of a base with form of cylindrical cupel, of little depth whose diameter operative maximum will be 10% smaller that the interior diameter of the plane base of establishment in the floor of the rigid container.~~

The inner rolling platform is formed by a cylindrical base and four or more

multidirectional wheels.

The cylindrical base has the shape of a rather shallow cupel, the maximum operative diameter of which is 10% less than the inner diameter of the supporting peripheral ring supporting the container on the ground.

5 ~~The cylindrical cupel, in the center of its support base, has a wide one hole, of minimum diameter of at least half of that of the cupel, with a wide one inclined outlying area, of pending equal to that of the concave inferior base of the container and with a difference between their diameters exterior and interior of at least 12%.~~

10 The cylindrical base is divided into two areas: the circular crown and the central circular groove, which in turn consists of an inclined circular area and a central circular hole.

The circular crown is the peripheral area of the inner rolling platform, and is where the four or more multidirectional wheels are placed in a perpendicular and symmetrical manner and secured by rivets or screwed joints.

15 In the center of the circular crown there is a central circular groove with an inclined circular area inclined at an angle identical to that the incline angle of the concave lower base of the container, and having a width demarcated by a difference between its outer and inner diameters of at least 12%.

20 In the center of the central circular groove, there is a wide circular hole with a diameter of at least half the total diameter of the cylindrical base.

~~The angular similarity of the inclined sections of establishment of the inner rolling platform and of the concave area of the container, it allows, that both elements are sustained in a stable, firm and sure way.~~

25 ~~Another essential parameter of the inner rolling platform is its height functional total, that is to say with the wheels installed in their crown area to circulate, with a minimum of four directional or fixed wheels, by means of riveted or by means of screwed union, in a perpendicular and symmetrical way, counting also; the grosor of the construction material of the cylindrical cupel, the height of establishment of the inner rolling platform in the concave inferior base of the one container, determined by~~
 30 ~~the dimension of the interior diameter of the central hole of the inclined profile that she must enter in the periphery of the concave inferior base of the one container, until 20% of the arrow of their segment of a circle, and finally, the height free of the inferior border of the container to the floor, with the rolling platform installed intern that should be understood in an interval of 8 mm. to 14 mm., depending on the type of activity surface~~
 35 ~~and of the carrying capacity of the container, being able to this way to use wheels of~~

different diameter and capacity of its loads, in base of the total functional height that should have the inner rolling platform previously according to the optimization of fundamental parameters exposed.

5 The height functional total of the platform rolling intern is decisive in the operation of the internal mechanism for inclination of the container, then it defines an interval of good securities with those that the mentioned platform can be installed and desinstalada without difficulty, that is to say that tilts without obstacles.

10 The rigid container, to be able to use the inner rolling platform, their inferior base forms a holder of section location plane concave, generated starting from the introduction of a spherical segment, that it corresponds to the concave inferior base of the rigid container, inside the one cylinder of sustentation in the floor of the rigid container, penetrating from its base superior up to the 2/3 of their height, and also, he should have a reason adimensional between the longitudes of the rope and the arrow of the spherical segment smaller than 5,25.

15 The height of the wheels and the diameter of the inclined circular area of the cylindrical base of the inner rolling platform determine the level of its placement in the lower convex base of the container, which will be up to 20% of the height or rise of its concavity and define the free height of the lower edge of the container to the ground, with the inner rolling platform installed. The free height is within 8 mm to 14 mm,
 20 depending on the type of activity surface and the load capacity of the container. Accordingly, wheels with a different diameter and load capacity may be used.

The total height of the inner rolling platform is a determining factor in the operation of the mechanism for its placement and extraction of the container by tilting, as it defines an interval of optimal values with which the mentioned platform can be
 25 installed and dismantled without difficulties, i.e. it tilts and is coupled to or released from the container without any obstacles.

The container includes a positioning receptacle with a flat concave section, necessary for being able to use the inner rolling platform, and formed from the lower convex base of the container. The convex base of the container is enclosed by a
 30 supporting peripheral ring of the receptacle for supporting the container on the ground. The flat concave section drops from the upper base edge down to 2/3 of the receptacle's height. A ratio, between the lengths of the chord or width and the rise or height of the flat convex section is less than 5.25.

35 The angular similarity of the inclined placement sections of the inner rolling platform and of the lower convex strip of the container, allows both elements to be

coupled in a stable, firm and safe manner.

~~This conformation constructive characteristic, similar to that of those recipients to pressure metallic present in the market, it becomes extensive by means of this invention of the inner rolling platform, to all type of rigid containers not pressurized motives that will be able to this way, to improve their use estates.~~

Although this constructive configuration with a positioning receptacle with a flat convex section already exists in the metal pressurized containers present on the market, it only has functions of vertical support on the ground. By the invention of the inner rolling platform, it can be applied to any type of moving containers which are manufactured by incorporating the described positioning receptacle.

~~The basic constructive characteristic of this invention is the interrelation of the selection of geometric parameters optimized regarding these cut: the plane concave of the holder of location of the container and the rectangular of the cylindrical cupel of the inner rolling platform. Conjunction selective that allows the correct operation of the internal mechanism for inclination of the installation container and extraction of the inner rolling platform, without rising of the container, and that it can be implemented by means of the introduction of the data in a calculation program that gives some functional constructive conformations of both as products final that will be been able to manufacture in any way, either, for shaping, assembling, court, inlaying of a total or mainly metallic material, plastic, vitreous, ceramic, wood or fiber, and I eat rigid containers, of the type barrel, box, palet, can, ark, closet, boat, drum, barrel or tank.~~

The basic constructive feature of this invention is the interrelation of the total height and diameter of the inclined circular area of the inner rolling platform with the curve and height of the convex base of the positioning receptacle of the container, defining the optimal values with which the mentioned inner rolling platform can be installed and dismantled in the concave base of the container without any obstacles.

~~By means of the system that is wanted to be protected it gets, in an easy way and with little effort, to locate the internal rolling platform in the rigid container, inside of and under their positioning receptacle, only, with a slight angle of basculación of the rigid container, without lifting it of the floor, and in the journey gradual of turn of the basculación, the concave section of the base of the positioning receptacle of the rigid container as she goes entering in the central hole of the inner rolling platform, until a moment in that it tilts from the floor toward the concave inferior base, towards the total uprightness of the container, the inner rolling platform returns to the floor and both are installed in the mentioned concave inferior base of the aforementioned rigid container.~~

The inner rolling platform is characterized in that the interaction of its geometric parameters and those of the positioning receptacle of the container allow for correct operation of the inclination installation and extraction mechanism for installing and extracting the inner rolling platform, without lifting the container. The invention can be implemented by a calculation program providing functional constructive formations of both as end products. These end products can be manufactured in different ways, e.g., by molding, assembly, cutting or deep-drawing of a completely or mainly metal, plastic, vitreous, ceramic, wood or fiber material, and can include various shapes of the containers, such as a barrel, box, tin, chest, cupboard, can, drum, cask or tank.

~~With the full uprightness of the rigid container the inner rolling platform it is completely couple and holding from a reliable and stable way to the one rigid container that independently of their load state, both will be able to make a soft, firm and stable smooth displacement.~~

~~The mentioned mechanism also, it acts in inverse sense allowing the extraction of the inner rolling platform installed inside the positioning receptacle of the container, alone by means of a small inclination of the rigid contendor and you proceeds to catch without more the mentioned platform that for the combined action of the concave base of the positioning receptacle of the container and of the central hole of the inner rolling platform, this it is loose without more.~~

~~All these previous performances are carried out without any participation external, alone they are consequence of the estates of the improvement of the invention.~~

~~The versatility of the system of inner rolling platform will make that all the fitting stocks and separation during the manipulation of the containers, they can be applied to as much as recipients to metallic pressure or without pressure and not metallic, with different forms from simple configurations as the cylindrical one, until the most complex as the elliptic ones or the poliedric.~~

~~The process of production of the inner rolling platform goes into it begins with the definition of the endproduct, specified by the constructive configuration, with form of thick disk, when the building supply is plastic mold material or with form of cylindrical cupel, for when the material type of construction, it is cold thin and laminate steel plate, improving the mechanical characteristics for static efforts, in order to resist some concentrations of apparent tensions for the existence of the central hole and the localization in their outlying of the load for compression that it is necessary to support, with a minimum elastic capacity and without permanent deformation, for half of the~~

~~system of having conformed by not very deep cold inlaying and simple conformation in a single phase, circumstances that facilitate the construction of the dies for such an inlaying type and the level of improvement of the productivity of the press, both therefore, allow a reduction of operative costs.~~

5 The production process of the inner rolling platform begins with defining the end product, specified by the constructive configuration. With a thick disc shape, when the construction material is molded plastic, or with a cylindrical base shape for when the type of construction material is thin and cold-rolled steel sheet metal, it is necessary to improve the mechanical characteristics due to static force for the purpose of resisting
 10 evident concentrations of stress due to the existence of the central hole and the location in its periphery of the compression load it must support. A minimum elastic capacity and no permanent deformation is achieved by means of the shall cold deep-drawing forming system and simple formation in a single step, that facilitates construction of the dies for such type of deep-drawing and the level of improvement of
 15 the production of the press. Both therefore allow reducing operative costs.

~~This way, a resistant endproduct is gotten with high margin of security to the mechanical solicitations of the operative conditions characteristic of the inner rolling platform, so that it makes the transfers of the container with positioning receptacle with or without load, be very reliable, stable, simple, quick and mainly, fewer made an effort.~~

20 Starting from a joint design of the positioning receptacle of the container and of the inner rolling platform, they can be manufactured in a simple and reliable manner, assuring the non-deformability of both, safe use, and a reduction of manufacturing costs. A strong end product with a high margin of safety under the mechanical demands of the typical operative conditions of the inner rolling platform is thus obtained
 25 so that moving the container with a positioning receptacle with or without a load is very reliable, stable, simple, fast and requires little effort during the installation and extraction of the inner rolling platform , minimizing bone or muscle strain in the limbs and lumbar region of the back.

30 By means of the system for which protection is sought, the inner rolling platform is placed easily and with little effort in and under its positioning receptacle by simply tilting the container, without lifting it off the ground, and in the gradual return travel of the tilting, as the concave section of the base of the positioning receptacle of the container gradually enters the inclined circular area and the central hole of the inner rolling platform, up to the moment in which it tilts from the ground towards the lower
 35 convex base, it stops when the container is fully vertical. The inner rolling platform then

returns to the ground and both are installed in the mentioned lower convex base of the mentioned container.

5 With the container being completely vertical, the inner rolling platform is completely coupled to the container and reliably and safely holds the container which, regardless of its load condition, can both perform a smooth, firm and stable rolling movement.

10 The mentioned mechanism also acts in the reverse direction allowing the extraction of the inner rolling platform installed inside the positioning receptacle of the container only by inclining the container, and then simply grabbing the mentioned platform which, due to the joint action of the convex base of the positioning receptacle of the container and of the inclined circular area and of the central hole of the inner rolling platform, is simply released.

15 All these previous actions are carried out without any external participation; they are only the consequence of the properties of the improvement of the invention.

DESCRIPTION OF THE DRAWINGS

Brief Description of the Drawings

20 ~~To complete the description, and with the object of helping a better understanding of the characteristics of the invention, there are five views with schematic representations, of illustrative character and not limitative that pick up a prototype model.~~

A series of drawings which aid in better understanding the invention and which are expressly related to an embodiment of said invention, are presented as an illustrative and non-limiting example thereof, and will be very briefly described below.

25 ~~Figure 1 represents a view of a longitudinal cross-section of the inner rolling platform, formed by a cylindrical part, obtained by means of an inlaying process, and shows directional wheels.~~

30 Figure 1 shows an elevational longitudinal section view of the inner rolling platform formed by a cylindrical base and multidirectional wheels where the base is obtained by a deep-drawing process.

~~Figure 2 shows a view in plan superior of the inner rolling platform.~~

Figure 2 shows an upper plan view of the inner rolling platform.

35 ~~Figure 3 illustrates a view of a longitudinal section of the inner rolling platform, obtained by means of shaping, next to the recipient to metallic pressure, in positions that they correspond at the beginning of the installation of the inner rolling platform, or,~~

at the end of the extraction of the one mentioned platform.

Figure 3 shows an elevational longitudinal section view of the inner rolling platform (obtained by molding), together with the metal pressurized container, in positions corresponding to the beginning of the installation of the inner rolling platform, or at the end of the extraction of the mentioned platform.

Figure 4 represents a view of a longitudinal section of the inner rolling platform, obtained by means of shaping, next to the recipient to metallic pressure, in positions that correspond to intermediate installation of the inner rolling platform or to intermediate of the extraction of the platform.

Figure 4 shows an elevational longitudinal section view of the inner rolling platform obtained by means of molding, along with the metal pressurized container, in positions corresponding to the middle of the installation of the inner rolling platform, or the middle of the extraction of the mentioned platform.

Figure 5 contains a view of a longitudinal section of the inner rolling platform, obtained by means of shaping, next to the recipient to metallic pressure, in positions that they represent the end of the installation of the inner rolling platform, or, the beginning of the extraction of the aforementioned platform.

Figure 5 shows an elevational longitudinal section view of the inner rolling platform (obtained by molding), with the metal pressurized container, in positions representing the end of the installation of the inner rolling platform, or the beginning of the extraction of the mentioned platform.

Figure 6 is a bottom plan view of the inner rolling platform, obtained by means of an inlaying process, next to the recipient to metallic pressure, in the same positions as in Figure 4.

Figure 6 shows a lower plan view inferior of the inner rolling platform, (obtained by a deep-drawing process), along with the metal pressurized container, in the same positions shown in Figure 4.

~~PREFERRED EMBODIMENT OF THE INVENTION~~

~~Description of a Preferred Embodiment of the Invention~~

Following is a description of an example of the invention, in the enclosed drawings.

A particular embodiment of the invention will be described below in reference to the attached drawings.

Leaving the existence in the market of containers with positioning receptacle, as

recipients or containers of metal pressurized for liquids or OLG, particularized in a type bottle of butane (Figures 3, 4 and 5) for example of operative realization extrapolable to any process of optimization of the design and production of a rigid container with positioning receptacle and the subsequent process of optimization of the design and production of their corresponding inner rolling platform, adapting their construction geometric parameters to those of the one position receptacle of the mentioned butane bottle (4 and 7 in the Figures 3, 4 and 5).

Starting from the existence on the market of containers with a positioning receptacle, such as the metal pressurized containers for liquids or LPG, the latter will be used as a reference. Specifically focused on a domestic butane type bottle (Figures 3, 4 and 5), an operative embodiment can be extrapolated to any optimization process of the design and manufacture of a container with a positioning receptacle and the subsequent optimization process of the design and manufacture of its corresponding inner rolling platform, adapting its constructive geometric parameters to those of the positioning receptacle of the mentioned butane bottle (4 and 7 in Figures 3, 4 and 5).

~~The positioning receptacle of the butane bottle has the dimensions minimum precise enabling the action of the internal mechanism of inclination of the placement container and extraction of a rolling platform appropriate.~~

The positioning receptacle of the butane bottle has the minimum dimensions necessary so that the action of the inclination placement and extraction mechanism for placing and extracting the container of a suitable rolling platform is possible.

~~The fundamental parameters that define those minimum dimensions (7 and 8 in the Figures 3, 4 and 5), include a spherical segment 8 which penetrates until the 2/3 parts of outlying hoop of support in the floor (9 in the figures 3, 4 and 5) and also, the relationship adimensional between the rope and the arrow of the spherical segment (8 in the figures 3, 4 and 5), it is of 5,19.~~

The essential parameters defined by these minimum dimensions (7 and 8 in Figures 3, 4 and 5) are the spherical segment penetrating up to 2/3 of the height of the supporting peripheral ring on the ground (9 in Figures 3, 4 and 5) and also the dimensionless ratio between the chord or width and the rise or height of the spherical segment (8 in Figures 3, 4 and 5) is of 5.19.

~~The inner rolling platform is entered in the holder of positioning receptacle of the butane bottle. Firstly, the bottle is inclined, gradually and slightly, up to about 68° on the floor (h in the Figure 3), using as fulcrum an area of the border of the outlying hoop of the bottle that supports it on the floor (8 and 9 in the Figure 3) and as it causes~~

advancing of the rising of the bottle, the surface of the fulcrum is diminished, until being reduced to a small one arch.

For the inner rolling platform to enter in the positioning receptacle of the butane bottle, the latter is first inclined up to 68° on the ground (h in Figure 3), using as a fulcrum an area of the edge of the peripheral ring supported on the ground (8 and 9 in Figure 3). As the lifting of the bottle advances, the surface of the fulcrum gradually decreases until it is reduced to a small arc.

The short necessary journey of this internal mechanism of inclination of the one container, and the continuous support of the container in the floor makes that the effort, which is necessary for their light inclination, smaller. The short travel necessary for this inclination mechanism of the container and the continuous support of the container on the ground make the effort necessary for the tilting less by an order of magnitude.

Next, a user catches the inner rolling platform (4 in Figure 3), and it locates it, without having to specify that location, under the positioning receptacle of the butane bottle (7 and 8 in Figure 3). Once having finished this positioning, the inclined butane bottle is returned, progressively to its vertical position (8 in Figures 5 and 6), and to be installed the inner rolling platform (4 and 8 in Figures 5 and 6).

The inner rolling platform (4 in Figure 3) is then grabbed and placed, without having to position it, under the positioning receptacle of the butane bottle (7 and 8 in Figure 3), so that once this positioning has ended, the inclined butane bottle progressively returns to its vertical position (8 in Figures 5 and 6), and the inner rolling platform (4 and 8 in Figures 5 and 6) is installed.

During this journey of turn of the basculación the mechanism acts for inclination of the bottle of installation butane and extraction, when the convex inferior base of the butane bottle (8 in Figures 3, 4 and 5) goes toward the central hole of the inner rolling platform (5 in the figures 3 and 4), until both contact, on the 80° regarding the floor (i in the figure 4), giving beginning to the basculación of the inner rolling platform (4 in the figure 4), moment in which has to go happening, with certain looseness due to the possible bumps, for the circular base of the interior border of the outlying hoop of support in the floor of the bottle (4 and 9 in the figure 3, 4, 5 and 6), that saving the short lash, according to the type of outlying hoop of support and condition of use, the user can end up decreasing the available interior diameter until 265 mm.

During this return travel of the tilting, the inclination installation and extraction mechanism for installing and extracting the butane bottle acts when the lower concave base of the butane bottle (8 in Figures 3, 4 and 5) is directed towards the inclined

circular area and the central hole of the inner rolling platform (5 in Figures 3 and 4), until they both make contact on 80° in relation to the ground (i in Figure 4), starting the tilting of the inner rolling platform (4 in Figure 4). At this time, the platform passes, with certain clearance due to the possible dents, through the circular base of the inner edge of the supporting peripheral ring for supporting the bottle on the ground (4 and 9 in Figure 3, 4, 5 and 6). According to the type of supporting peripheral ring and conditions of use, the inner edge and a short flange can reduce the available inner diameter up to 265 mm.

~~With the inner platform rolling seized to the convex inferior base of the butane bottle (4 in the figure 4), the movement of return of the basculación of the continuous butane bottle until the total uprightness (4 in the figure 5), being this way, installed the inner rolling platform.~~

With the inner rolling platform coupled to the lower convex base of the butane bottle (4 in Figure 4), the return movement of the tilting of the butane bottle continues until it is completely vertical (4 in Figure 5), the inner rolling platform thus being installed.

~~Equally, for the extraction of the inner rolling platform of inside and under the positioning receptacle of the butane bottle (4 and 8 in Figure 4), it acts inversely, the mechanism for inclination of the butane bottle of installation and extraction, by means of the geometric conjunction of the central hole and the profile of their inclined area of the internal rolling platform (5 and 6 in Figure 5) and the convex inferior base of the butane bottle (8 in Figure 5), it allows that, being installed the inner rolling platform, the operator proceeds to bow the butane bottle together with the inner rolling platform (4 and 8 in Figure 4), continuing both inclined ones and embedded until arriving at the 10° on the floor (h in the figure 3), moment in which the inner rolling platform is loose, that the operator will be able to catch, without more, when the butane bottle finds been inclined, up to the 22° on the floor (4 in Figure 3) and to return to the vertical one to the bottle of butane.~~

Likewise, to extract the inner rolling platform from inside and under the positioning receptacle of the butane bottle (4 and 8 in Figure 4), the inclination installation and extraction mechanism for installing and extracting the butane bottle acts inversely by means of the geometric conjunction of the inclined circular area and of the central hole of the inner rolling platform (5 and 6 in Figure 5) and the lower concave base of the butane bottle (8 in Figure 5). When the inner rolling platform is installed, and the butane bottle together with the inner rolling platform (4 and 8 in

Figure 4) are inclined, both continue to be inclined together until reaching 10° from the ground (h in Figure 3), at which time the inner rolling platform is released. The platform then can be grabbed when the butane bottle has been inclined up to 22° from the ground (4 in Figure 3) and the butane bottle returned to the vertical position.

5 The essential dimensions of the inner rolling platform ~~rolling are that include~~ the cylindrical cupel base (4 in Figures 1 and 2) ~~is narrow, being narrow~~ with a height of 10 mm. ~~(emm (in Figure 1), and has a diameter operative external maximum of 260 mm having a maximum operative outer diameter of 260 mm (d in Figure 1).~~

10 ~~Likewise, the~~ The inclined central circular area (6 in Figures 1 and 2) has a height of 10 mm. ~~and some mm, about 68° of inclination in reason of relation to the vertical one (a in Figure 1) and the dimensions of their diameters are; the external one axis (136° in Figure 1), the outer diameter (b in Figure 1) of 160 mm. and the intern~~ (c in Figure 1) of 140 mm.

15 The other essential functional parameter of the inner rolling platform is the total height functional total (g in Figure 1), determined by ~~their thickness that in this case it is steel plate of 1.2 mm., and for its thickness, which in this case is steel sheet metal of 1.2 mm, and by the total height of the directional wheels of 44 mm., and that they go inserted, perpendicularly and distributed symmetrically, multidirectional wheels of 44 mm. The wheels are perpendicularly inserted and symmetrically distributed in the crown area to circulate of the cylindrical cupel peripheral area of the cylindrical base (2 and 3 in Figures 1 and 2).~~

20 This height of the wheels ~~this referred refers~~ to the dimensions of several parameters; ~~such as, parameters, such as~~ the height of the wheel support (f in Figure 1) of 34 mm., ~~and the height free of the border mm, and the free height of the edge of the butane bottle to the floor ground with the inner rolling platform placed in place (figure 4) of 14 mm., referred to an internal mm. The inner diameter of the central hole (5 in the figures 1 and 5) of 140 mm.. Figures 1 and 5) is 140 mm.~~

25 This ~~optimized group set~~ of constructive parameters of the inner rolling platform, ~~it allows the platform to settle allows placing it~~ in the convex base of the positioning receptacle (8 and 5 in Figures 3 and 4), ~~when getting up and to tilt freely and being lifted and freely tilted~~ without obstacles on ~~their interior its inner~~ wheels (2 in Figure 3).

30 The ~~optimization of the selection of geometric parameters and characteristic construction, previously defined, makes that the conjunction geometric among the sections; the plan and convex previously defined constructive features and the parameters make the geometric combination between the sections, the flat convex~~

35

section of the positioning receptacle of the container (7 and 8 in Figures 3, 4 and 5) and inclined circular area and of the central hole of the circular crown of the internal inner rolling platform (5 in Figures 3, 4 and 5), allow that the platform rise and tilt, during the actions of coupling the latter to be lifted and tilted during the coupling action (4 in Figures 3, 4 and 5), inside of and under, of 5) inside and under the positioning receptacle of the bottle of butane, during its, also, functional baseculación butane bottle, and also during its functional tilting (7 and 8 in Figures 3 and 4).

The inner rolling platform sustains and it holds, in a reliable and sure way to the butane bottle through a wide band of their inferior base, to circulate and by the convex (8 in Figure 4), the container settles on the inclined profile of the hole central of the platform (6 in Figure 4) that with an inclination in that area of around is firmly held and supported in a reliable and safe manner to the butane bottle on the inclined circular area and the central hole of the platform (6 and 8 in Figure 4) given the equal slope of both placement surfaces, 68° with respect to the vertical, being the same the slope of both establishment surfaces, it is this way located, without slips and without touching the inferior border of the bottle in the floor, being able to, both to move easily.

This way, when not having to lift the butane bottle that when this loaded one in their entirety to position it in the conventional rolling platforms is very difficult and painful, the realization of a great effort The inner rolling platform is thus positioned, without slipping and without the lower edge of the bottle rubbing on the ground, both being able to be easily moved.

Therefore, since the butane bottle does not have to be lifted, exerting an excessive effort of placing the loaded bottle on conventional rolling platforms, which is very difficult and burdensome, is avoided.

The system, according to the present invention, of the internal mechanism for inclination of the fitting container and of loose of system according to the present invention of the inclination mechanism of the container for inserting and releasing the inner rolling platform in the rigid container with positioning receptacle, it allows to enlarge its use to all type containers, to those that at this time are manufactured for storage and transport of container with a positioning receptacle allows extending its use to any type of containers which are currently manufactured for storing and transporting pressurized liquids, LGOLPG and other liquefied gases, and also, to those that also to those which are manufactured pertinent from now on with the conformation basic characteristic for this purpose in the future with the suitable features of the positioning

receptacle.

The ~~optimized conjunction of all the essential~~combination of functional parameters of the inner rolling platform ~~to and of~~ the positioning receptacle of the butane bottle it allows ~~their placement and extraction in this last one to be carried out in~~
 5 ~~way easy, reliable, sure and without almost effort, by means of the internal mechanism~~
~~for inclination of the~~allows placing and extracting the latter in an easy, reliable and safe
~~manner making virtually no effort using the inclination mechanism of the butane bottle,~~
~~and simply inclining it up to 68° from its butane bottle, only inclining it 22° from the floor~~
~~in their position vertical initial.~~initial vertical position.

10 The materials and ~~the type manufacturing employees will be independent of the~~
~~one object of this invention, this way,~~type of manufacture used are independent of the
~~object of this invention. Therefore the inner rolling platform and the rigid container they~~
~~will be been able to manufacture for inlaying, hydroforming, shaping, assembling or~~
~~court of a material, total or mainly, metallic,~~container can be manufactured by deep-
 15 drawing, hydroforming, molding, assembly or cutting of a completely or mainly metal,
 plastic, vitreous, ceramic, wood or fiber, and finally, ~~they will have other forms different~~
~~to the circular one, as the elliptic one or the polygonal one.~~fiber material. Finally, they
may have shapes other than circular, such as elliptical or polygonal.